Space Weather Forecast

Issued on Tuesday, 23 August 2022 at 01:12 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Slight chance R1 from a moderately sized sunspot in centre north disc.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar Activity is Low, with eight sunspot region on the Earth-facing disc. The majority of these are very small and simple, except for the main region in the centre north disc. This has been the source of a number of Common class flares, and has shown ongoing steady growth. No Earth-directed CMEs (coronal mass ejections) were observed.

Solar Wind / Geomagnetic Activity: The solar wind persisted at elevated levels due to the ongoing fast winds from a coronal hole. The speed eased slightly from 550-600km/s, to around 520km/s. The magnetic field strength was generally weak, with the north-south component also weak and variable. Geomagnetic activity was generally Quiet to Unsettled (Kp1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be Low, but with a slight chance of increasing to Moderate, with isolated Moderate flares possible from the main sunspot on the Earth-facing disc.

Solar Wind / Geomagnetic Activity: There is still a slight chance of a glancing impact from a CME early on day 1 (23rd), however this is looking increasingly less likely and the effect of any impact is likely to be minimal. Current elevated solar winds are expected to gradually decline through the period, falling to background through day 3 and 4 (25th and 26th).Geomagnetic activity is forecast to be largely Quiet to Unsettled. There remains a chance of Active, and a slight chance of G1 Minor storm intervals early day 1 (23rd), should any CME arrival occur.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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